

XTAL

JANUARY
1947

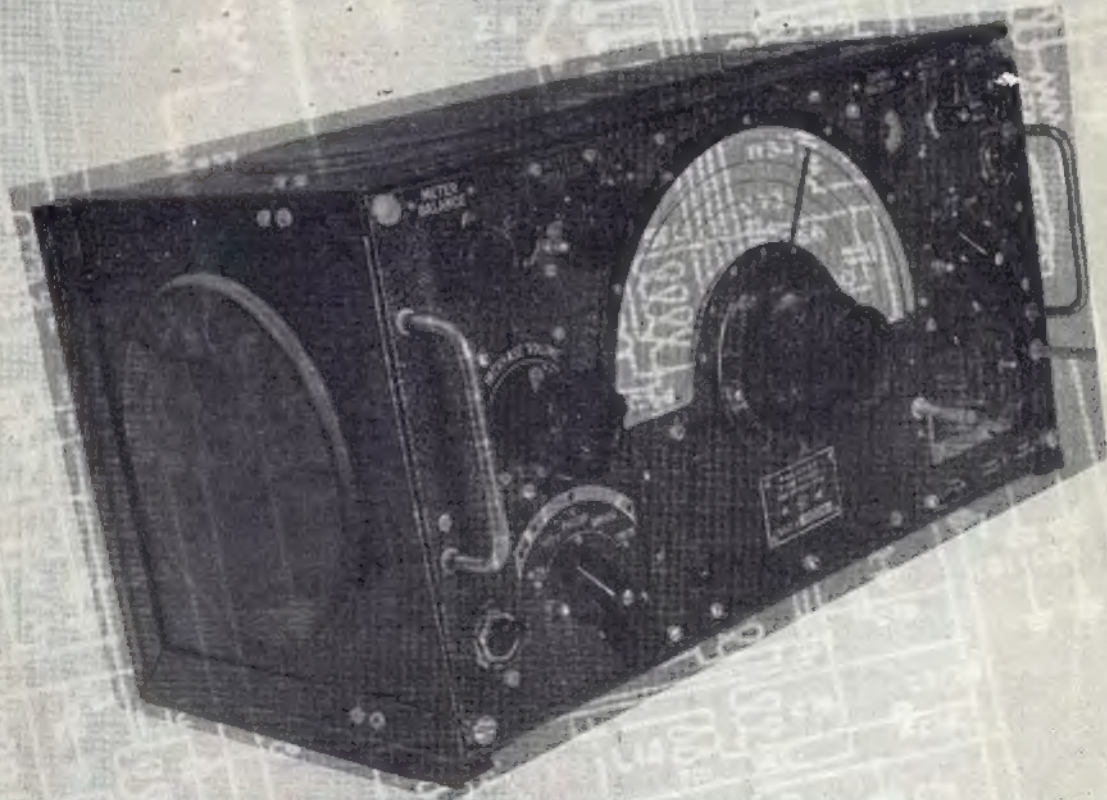
Vol. 8 No. 1

for the
radio
amateur

Albert E. Yates,
232 Benson Ave.,
Toronto 10, Ont.

VE3BIJ

7/47



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THE CANADIAN AMATEUR RADIO OPERATORS' ASSOCIATION
TORONTO, ONTARIO

SPECIAL ITEMS



Recent articles in QST have specified the use of special Chokes in their construction, and we have received numerous requests to supply these various items, such as:—

A.M.D. QST Aug. 46, Page 57

L2	0.2H.	Use	Hammond	Type	21803	
L2	10H.	"	"	"	153	
T1	Audio	"	"	"	135	(Total sec. used as pri.)
T2	0.4H.	"	"	"	21804	
T3	Power	"	"	"	271 or 272	

Speech Clipper, QST Nov. 46, Page 23

L1 3.75H. Use Hammond Type 22067

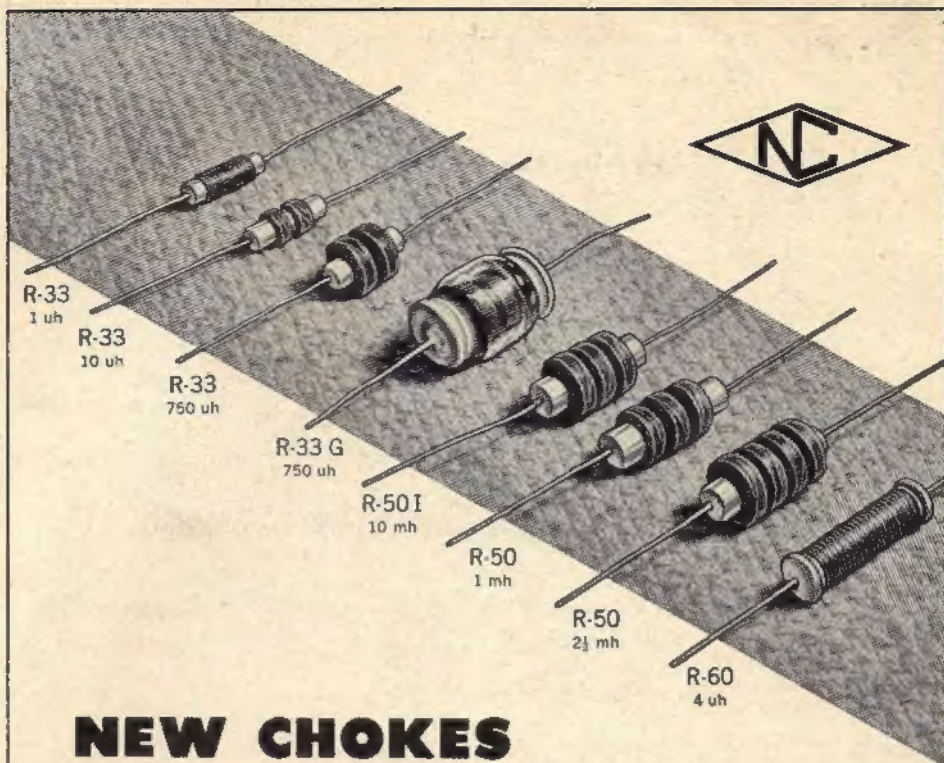
We are in a position to supply almost any special transformer or choke which may appear in QST from time to time, also 25 cycle power transformers for amateur communication receivers such as type 21321 for SX-25, type 21322 for SX28A, type 276 for BC 1068A U.S. Army receiver, Transformers for HQ-120 and HQ-129, RME 45 etc. are also available. Contact the nearest Hammond Jobber for any of the above or other special items which you may require in the future.

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The fundamental frequency range over which the instrument is a direct reading is 5 to 10 M/c's divided into 5 ranges as follows:—

Range 5	5 to 6 Megacycles
" 6	6 " 7 "
" 7	7 " 8 "
" 8	8 " 9 "
" 9	9 " 10 "

by the use of harmonics the overall frequency range may be extended, depending on the strength of the signal being measured:

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- 5 - 1.4 volt Filament Type
- 2 - 1N5GT
- 1 - 1E5GT
- 1 - 1D8GT
- 1 - 1G6GT

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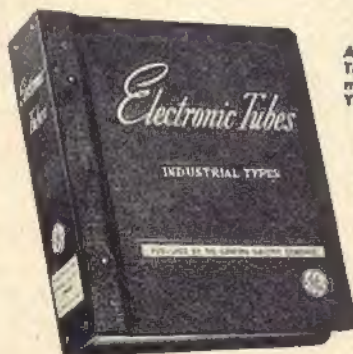
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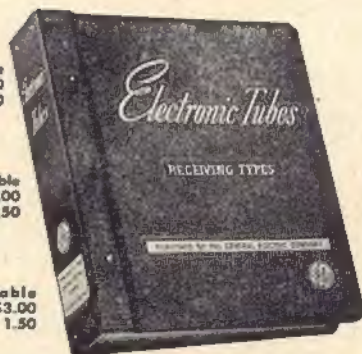
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The books, bound in hard loose-leaf

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R-147

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HEAD OFFICE — TORONTO



XTAL

[CRYSTAL]

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HILITES

All ARRL members in the Canadian Section are heartily urged to absorb editorial over-page and then mark ballots for CGM and his Alternate BEFORE THE 20th DAY OF FEBRUARY.

FORMULA FOR THRILLS: Read all about ARRL'S 13th International DX Competition on page 7 and then fire up the old rig, prune the antenna to the Nth degree, sharpen up the pencils, and work the world in nothing flat!

XTAL CONTROL

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. . . the CGM field . . .

ONE more reminder is in order about the current election for Canadian General Manager (ARRL). It is directed particularly at those of you who are Full Members of the League, but the subject is (or should be) of considerable interest to all Canadian amateurs. Only the former have the power to vote, but the outcome affects everybody equally. At the time of writing we are aware of two nominations for CGM and two for Alternate, and while there may be more, we can only suggest that you glance at the ballot form which should be in the hands of League members around the time this issue of XTAL reaches you. At the moment, however, we think you might be interested in a sketchy review of the qualifications of the candidates known to us. Running for CGM we find Alex Reid, VE2BE, and Tom Hunter, VE3CP. Alex, the present incumbent of the office, hardly needs any introduction to Canadian hams, having represented them at Hartford and Ottawa for seventeen continuous years. He first inherited the mantle of CGM by acclamation in 1929, and has a formidable record of success in defeating his opponents in all elections since that time. . . . Tom, VE3CP, is a newcomer to the field but not to amateur radio. First licensed in 1934, he has also taken an active part in club activities in the Windsor area, and is currently President of the Frontier Radio Club, a post he held in 1938-39 as well. During the recent war, he served overseas as a Signals Officer in the Army, with the rank of Captain. He is now employed as Occupational Counsellor with the Department of Veterans' Affairs, and in his leisure time he is active in the Canadian Legion (First Vice-president, Branch 143), the Windsor Junior Chamber of Commerce, and the Optimist International. Tom is equally active in amateur affairs, and on the walls of his shack can be seen certificates of PAM, ORS, OPS, RCC and the A1 Operators Club. Besides being a member of the ARRL, he is affiliated with CAROA and the RSGB. VE3CP can be heard frequently with a 800-watt signal on 80 and (soon) 20 meters, both phone and CW.

Two well-known hams are also in the running for the position of Alternate, Len Mitchell, VE3AZ of Toronto, and Charles Harris, VE6HM of Edmonton. Len is the present Alternate and has served in that capacity since

the election held in the fall of 1937. A bar-rister by profession, he has been continuously active since 1924 under his present call, and has served as a Director of the Wireless Association of Ontario for over ten years, and as President of two. Toronto hams will remember Len as a part-time Radio Inspector from 1935 until the outbreak of war. Owing to the limitations of his present location, VE3AZ will be heard only on 10 meters . . . Charlie, VE6HM, is one of the Prairie's most enthusiastic amateurs. He is a stalwart among the "Knights of the roaring road"—a Canadian National Locomotive Engineer. First licensed in 1926, he was Section Communications Manager of Alberta during 1932-33. Past president of The Edmonton Amateur Radio Club and active in ARRL Field Organization work as Official Observer, and a member of the A-1 Operators Club. He carries the banner of Western Canada and is the first entrant in ARRL elections from that sector in many years.

We hope that the above will assist you in intelligent voting. If you want more dope, get it from your fellow hams on the air. But whatever you do, don't ignore that ballot—get it in to ARRL headquarters before February 20. This election concerns you and will help to determine amateur affairs for the next three years. From here it looks like one of our most critical periods.

QST - QVE - QST

ALL MEMBERS OF ARRL

VOTE

BEFORE FEB. 20th

Proposals

You have probably noticed that the ARRL has withdrawn its proposals for a 40-meter phone band and for an extension of the 20-meter phone band. This action has been taken because of the imminence of the International Conference which has been moved forward to next May. As usual, it looks as if we're going

QSY to page 24

ARRL's 13th International DX Competition

by F. E. HANDY, W1BDI*

CONTEST PERIOD

CW, Feb. 14-17; Mar. 14-17; Phone, Feb. 21-24; Mar. 21-24

FOR the first time since 1940 world conditions permit announcement of this annual operating feature. Entries may be made in one or both contests. All bands may be used at will, but not frequencies out of the bands. Phone sub-bands must be observed. The same rules apply to both contests. The quota plan for mainland W/VE stations, 3-per-country, applies only in the CW contest. Entries are welcome for one or both contests. CW scores are independent of voice scores. All claimed points in the radio telephone section of the contest must be voice-to-voice. In the telegraph contest CW-CW QSOs only count.

Disqualifications

League Official Observers will be asked to report all violations to the Contest Committee. Disqualifications will be made as in former years for off-frequency operation, improperly modulated notes, and the like. Enforcement of sportsmanship in addition to the vital duty of ARRL in protecting the rights of all amateurs requires this. Two accredited O.O. reports will disqualify. Monitoring co-operation is requested of the FCC. Any stations known to have been logged in violations by the FCC during the contest will be disqualified automatically. A single citation or advisory notice will disqualify in this case. W1AW will likewise engage in monitoring for the award committee.

All nationals must work on frequencies made available to amateurs by international treaty provisions and limit operations to such of those frequencies or sub-bands as made available, where frequencies are set apart for amateurs, by edict of their government. Regardless of nationality, operators will be disqualified from competitive entry for listing and awards, if reported from any source and checked off frequency or in other violations in the contest period with sufficient evidence to prove such deviations to the satisfaction of the award committee. The interest of all amateurs in frequency allocations is too precious to permit any selfish or illegal operation jeopardizing the

reputation of all amateurs. A high degree of responsibility and frequency observance is necessary! ARRL will not permit scoring by unfair means where this can be checked and will not tolerate practices that might constitute grounds for complaint against the amateur service at the coming 1947 International Telecommunications Conference.

Contest Plan

Operators with the prefixes W (or other continental U.S. prefix) and VE will be taking part in a QSO Party with amateur stations in all other parts of the world. When they effect DX contacts, they will exchange self-assigned serial numbers (two²—or three-figure signal reports¹ plus three self-assigned numbers that stay the same for all stations). These complete exchanges are recorded in the contest log as shown in the example. From such a record each operator's score will be determined. From the scores (which the Contest Committee will verify by cross-examination of logs) the winners will be determined for each locality and medallions awarded. Three points can result from each contact with a full serial number exchange in any band, but no more can be obtained from the same station unless both stations connect in another band for additional exchanges. Contacts with non-participants can count. Refer to this announcement if necessary to explain the plan of operations.

Those amateurs outside³ the U.S. and Canada will try to work as many W/VE (continental mainland) stations as possible to exchange serial numbers. Stations in all localities need only take part on the dates announced and report results at the end of the test to receive credit, and be eligible for awards unless other evidence requiring disqualification is submitted.

Medallion Awards

Each operator's competition derives from the operation of amateurs in his immediate ARRL section⁴ of W/VE awards are for the operator running up the best record for each Section under the Rules. Comparison of scores between remote sections and countries is not indicative because of the different conditions

* Communications Manager, ARRL.

under which stations work. Medallions will be awarded the CW winner and the Phone Contest winner for each country, and likewise for each continental U.S.A. and Canadian ARRL section.

All hams in the one territory (ARRL Section⁴ for continental U.S.A. and Canada) (ARRL-list country) will compete, two week-ends Feb. 14-17 and Mar. 14-17 for a CW Medallion Award, and/or the two week-ends Feb. 21-24 and Mar. 21-24 for a Phone Medallion Award. Since the DX transmission characteristics for the different bands will be most nearly the same for all operators in any award-area, the chances are as equally fair to all as can be arranged. Winning will depend on station and operating ability!

The Contest Period

The local starting and ending times for our two DX competitions are best shown in tabular form. Times outside the Americas should be computed from "Greenwich".

CW Contest:		Time		Starts		Ends	
Greenwich	Feb.	15	0001 (12.01 a.m.)	Feb.	16	2359 (11.59 a.m.)	
A.S.T. (60th meridian)	14	8.01 p.m.		16	7.59 p.m.		
E.S.T. (75th meridian)	14	7.01 p.m.		16	6.59 p.m.		
C.S.T. (90th meridian)	14	6.01 p.m.		16	5.59 p.m.		
M.S.T. (105th meridian)	14	5.01 p.m.		16	4.59 p.m.		
P.S.T. (120th meridian)	14	4.01 p.m.		16	3.59 p.m.		
The second period of this contest starts at these same hours, Mar. 15 and Mar. 16 respectively in a table like the above.				The second period of this contest ends at these same hours, Mar. 16, in a table like the above.			
Phone Contest:		Time		Starts		Ends	
Greenwich	Feb.	22	0001 (12.01 a.m.)	Feb.	23	2359 (11.59 a.m.)	
A.S.T. (60th meridian)	21	8.01 p.m.		23	7.59 p.m.		
E.S.T. (75th meridian)	21	7.01 p.m.		23	6.59 p.m.		
C.S.T. (90th meridian)	21	6.01 p.m.		23	5.59 p.m.		
M.S.T. (105th meridian)	21	5.01 p.m.		23	4.59 p.m.		
P.S.T. (120th meridian)	21	4.01 p.m.		23	3.59 p.m.		
The second period of this contest starts at these same hours, Mar. 22 and Mar. 21 respectively in a table like the above.				The second period of this contest ends at these same hours, Mar. 23rd, in a table like the above.			

Operate all times available in the two week-ends of the CW competition and/or two week-ends of the Phone competition. Indicate your total time on the air on logs as a matter of interest.

Operating Procedure

Crowding the band edges is an invitation to be disqualified! W/VE hams not wanting to waste operating time will avoid any use of "CQ DX." Stations "outside" will not waste time answering such, when one of their calls will bring hundreds of answers from more efficient operators. **Listening** is a first essential. "You have to hear them before you can work them." All operators should try to work **break-in** for best operating efficiency. Hams outside W/VE urge contestants not to waste time discussing RST. Transmit the full serial number for exchange . . . then any "extra" time needed will be available if fills are necessary. U.S. and Canadian amateurs ask for continued use of CQ by stations in remote localities . . . but make such CQs short! **Sign often** in CQs or calls. All participants:

Use the following after a CQ so the receiving operator will know from what part of the band your tuning will start.

HM—Will start to listen at high frequency end of band and tune towards middle of band.

MH—Will start to listen in the middle of the band and tune toward the high frequency end.

LM—Will start to listen at low frequency end of band and tune towards middle of band.

ML—Will start to listen in the middle of the band and tune toward the low frequency end.

VFO use in calling on the exact frequency of the DX stations is out! Many remote stations will not answer any such calls. It encourages QRM to pile up so no stations get exchanges through. The same station can be worked additional times in additional bands provided the c.w. quota, per band, per country, is not exceeded.

Serial Numbers

Participants assign themselves a distinctive three-numeral group which is used throughout the contest as the last part of each number exchanged (sent). The first digits of the serial number sent constitute the Readability, Strength, and Tone reports of the station to which the number is sent. Try to send and receive one complete serial number with each DX station.

Club Participation

Certificate awards will be made through each club (in addition to ARRL section awards) in the continental United States and Canada to a member where three or more individual club members, or local hams invited by such a club take part. For a club member to rate a CW Winner's Certificate, at least three acceptable entries from CW club-workers must be sent to Headquarters. A club Phone Winner's Certificate likewise will be issued to one member

LOG, 13th A.R.R.L. INTERNATIONAL DX COMPETITION

(Example, W6ZAA Serial No. 543)

C. W. Entry

Feb. 14th-17th

(Logs from W or VE, show, for each band)

Call Signal ..

Name ..

Different
Stations and

Address ..

Bands 3.5 7 14 28 Mc. Total Countries

Transmitter Tubes

Plate watts (input

Nr. DX Stations QSOed

3 5 1 9 9

last stage)

Nr. Countries QSOed

2 4 1 7 6

Nr. Hours Station Op-

eration (17 h. 28

min.) A.R.R.L. Sec-

tion (for W/VE's)—

(Logs from remote points indicate for each band in this part of the log "Nr. W/VE sta. QSOed . . ." and Nr. U.S.A.-Canada licensing areas worked . . ." in a similar tabulation.)

Date and Time	Station Worked	Country	Worked Record of New Countries for Each Freq. Band				Serial Numbers		Points
			3.5	7	14		Sent	Received	
Feb. 14th 4.02 p.m. P.S.T. (or 0002 GT.)	G6NF	Great Britain			1		568,543	478,001	3
Feb. 15th 7.15 p.m. P.S.T.	G2MI	Great Britain			1			578,988	2
9.40 p.m. P.S.T.	PAoAZ	Netherlands			2		488,543	488,111	3
March 14th 7.38 p.m.	VK2TI	Australia		1			579,543	579,287	3
8.30 p.m.	ZL1MR	New Zealand		2			487,543	398,657	3
11.50 p.m.	VP9X	Bermuda			3		349,543	588,984	3
March 15th 12.05 a.m. P.S.T.	VK2RA	Australia		2			586,543	577,000	3
3.10 a.m. P.S.T.	VK5FM	Australia				1	499,543		1
2.00 p.m. P.S.T.	PY2AC	Brazil			4		487,543	486,852	3

Multiplier = 2 + 4 + 1

24 X 7 (countries) = 168 score

I hereby state that in this contest, to the best of my knowledge and belief, I have not operated my transmitter outside any of the frequency bands specified in, or in any manner

contrary to, the regulations my country has established for amateur radio stations; also that the scoring points and facts as set forth in the above log and summary of my contest work are correct and true.

Signature of operator(s).

only when three phone entries mentioning the club have been received. Reports must be made direct to ARRL, West Hartford, mentioning the name of the club, to be eligible for the Affiliated-Club-Award. Entrants who mention their club will be eligible for both Club and Section awards.

The sum of the scores of all club participants (Phone and CW) may be added, and reported

by the club's secretary to count for the club itself. A gavel, with engraved sterling silver band, is offered as an award to that club whose Officers or Activities Manager submits the greatest collective score in ARRL's 13th International DX Competition.

Additional Rules

I. Contest work must all take place in the Contest Period.

- II. Logs must include date, time of QSO, call of station worked, serial numbers exchanged and data shown on sample log, with the claimed score.
- III. Scoring: Both the W/VE station, and the station in the remote locality receive one point when the W or VE serial number is acknowledged by the station in the remote locality. Each operator similarly, may add two points further when a serial number (to U.S.A./Canada) is acknowledged by the W/VE.
- IV. Logs must be marked "Phone" or "CW". Separate entries may be made for CW and Phone. This is optional. Cross-band work may not be counted in claimed scores.
- V. Quotas. There is no quota limit on the number of W/VE stations that "outside" stations may work for credit. W/VEs: (CW) The quota of three stations per country may be worked in each different band. (If one-way exchanges for less than the three points per station have been made, an additional station may be worked to give not more than nine points (basic) per country, per band. This quota may be filled in each different band. (Phone): There is no quota limit on the stations per country.
- VI. Multipliers: W/VE: The number of countries worked on one band plus those worked on a second band, plus those worked on a third band, etc., shall be used as a multiplier.
- VII. All others: The number of continental U.S.A. and Canadian licensing areas contacted (a possible eighteen) shall be used as a multiplier of the sum of all claimed QSO points for the total score. This multiplier is increased further by working the same areas on additional frequency bands. (Example: ten, eight, and five licensing areas, as indicated by call prefixes of W/VE stations, are worked on three bands. The sum, twenty-three licensing areas, is the multiplier to use to get the gross score.)
- VIII. All entrants agree to be bound by all provisions of this announcement and the regulations of their licensing authority. In a contest of this magnitude, no correspondence can be entered into regarding Award Committee Decisions.
- IX. The highest scoring individual operator's score is the official score for all awards. Other operator's scores must also be submitted separately if more than one operator works a station. The station score (all points by all countries) may be stated for purposes of comparison only.
- X. Reports: No reports should be sent until

Scores are the sum of DX Contact Points Times Official Countries Worked (or the number of W-and-VE districts)—Swap number groups (signal reports and self-assigned serial number) in DX QSOs—Separate medallions to CW and Phone DX winners—Gavel trophy to leading club!

both sections of the contest have been completed. Entries from participating stations must be postmarked on or before noon April 10, 1947, to be considered for awards. Play safe . . . mail your report immediately at the end of the contest so your results can be credited. Show your claimed-score in full, following a tabulation of points in the log-form indicated with this announcement.

- XI. The entries will be passed upon by an ARRL award committee whose decision will be final in all cases.

Warning!

FCC monitoring station personnel are acquainted with the date of our DX contest. ARRL Official Observers will be on the job. Do not risk disqualification, or monitoring station citation! Avoid poor notes, over-modulated signals, and off-frequency operation. Avoid parasitics and improperly strong harmonics (which may disqualify) by careful check of transmitters in advance. Better lose some operating hours rather than jeopardize amateur standing.

Competitors are invited to submit lists, even if they show only a small score to support claims made in logs from other stations.

- 1 For R-S-T definitions of "readability, strength and tone" in that order: See 1946 ARRL Handbook, page 464, or Operating an Amateur Radio Station, page 15.
- 2 In Phone exchanges only two numerals will be given, the first the "readability" and the second the "strength". Telegraph entrants will send and receive six figure groups, and phone entrants, five figure groups. (By giving the five numbers reports may be noted without the necessity of using the words "readability" and "strength" which are normally desirable words to use in exchanging phone reports.) Phone operators do not need to use HM, ML, etc. They can "say it with words" indicating where they will be listening first.
- 3 Alaska, Hawaii, Philippine Islands, Cuba, Porto Rico, Newfoundland, and all localities outside the continental United States and Canada will receive QST mention and awards based on their work with W/VE stations.

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Don't Tie Me Down!

by JOHN PADDON, VE3BLZ*



Photo shows gadget complete and ready to walk!

LET those who will bow down before chromium-plated microphones or clutch them in their hot little hands. I like both hands free and to be on a long enough leash to get up and wander about while the OM on the other end gets it off his long-winded chest.

The standard breast set such as is used in telephone exchanges seemed a good answer. True, the microphone is of the carbon type and many ops object to them. The reasons for the objection have never been clear. It may be assumed that the telephone companies have not spent years and millions on research to develop anything except a microphone having an optimum intelligibility characteristic.

The question was quickly closed when investigation showed that there were not enough breast sets available to meet company demands—let alone sales to hams.

It was, however, possible to acquire from junk a breast set of ancient vintage. The microphone button had departed this life. The situation looked glum.

In an emporium given over to the sale of war supplies (and weary) equipment reposed a

(*c/o XTAL)

hand microphone from a tank set 19.

The dynamic microphone unit itself is a good piece of equipment.

The casing with its rubber spout and heavy handle was hardly a thing of beauty but then seemed to have possibilities—at least worth the gambling of a one-dollar bill.

The photograph shows the end product. The sketch shows the simple operations performed on the tank set 19 microphone.

The cover carrying the "spout" was unscrewed and the microphone removed and carefully put away. It is well to remember that it has a very powerful permanent magnet and iron filings are to be found on most work benches.

The collar on which fits the rubber "spout" was sawed off flush (cut A).

The handle was sawed off when it joins the body of the microphone housing (Cut B).

From here on is clear sailing. The square cut shank left by amputation of the handle is rounded with a file or emery wheel.

The microphone casing is screwed to the plate of the breast set with three small nuts and screws.

The adjustable mouth piece is secured to the

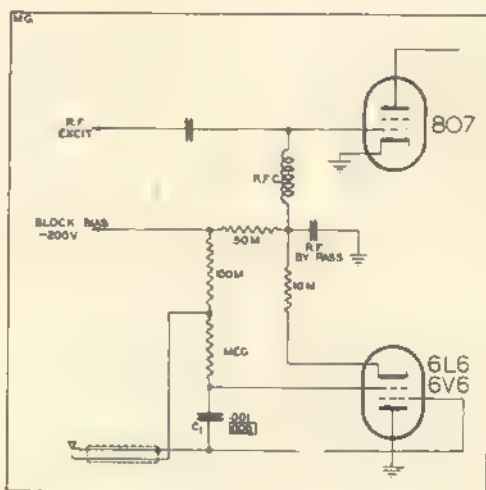
QSY to page 31

Respect Thy Neighbour!

by A. DURANT, VE3YE*

THIS circuit was adapted to grid key an 807 R.F. stage, under threats of annihilation and worse from very local B.C.L.'s. It serves a dual purpose by keeping the XYL in a happy (or sad, as the case may be) frame of mind as she listens to her favorite soap drama. No doubt there are others who find their existence as hams a question of time, and who desire friendly relations with their immediate family and neighbors. To them this circuit may prove beneficial.

The 10,000-ohm grid leak and 50,000-ohm resistor form a voltage divider to protect the 807 in case of excitation failure, and the 100,000-ohm resistor limits the keyed current to a low value. This circuit as is gave good R.F. output wave shape as viewed on an oscilloscope at a keying speed of 60 cycles. No claim is made for complete elimination of clicks, but on an amplifier free of both high and low frequency parasitics no serious clicks could be detected on a five-tube B.C. receiver



Essentially the circuit is the conventional tube keyer turned upside down and placed in the grid circuit of an 807, which also cuts the number of keyer tubes to one, and revised to give a time delay as much the same as possible on both the make and break of a code character. The control of this delay is effected by varying the value of the condenser connected from plate to grid of the 6L6 keyer tube, which in this case is .001 mfd. With the values shown the delay on make and break is within approximately 10 per cent., and as code speeds up the delay in the value of C1 is increased.

operating in the transmitting room. The station receiver operating on the same band as the transmitter could be left on with no fear of blowing out a speaker cone when the key was closed. However, the usual blocking of the receiver was present. It may be well to note here that the keyer tube is placed on the same chassis as the keyed stage, and it is important that the keying line be shielded, with shield grounded to transmitter chassis and also to frame of key or bug. Shielded microphone cable makes a very good line for this purpose. Keying lines should be kept short as possible, but operation of keyer appears to be satisfactory with a keying line up to 20 feet.

(*180 Colin, Toronto)

Contest Committee is working on the details, including multipliers for lower power, and we'll have the complete dope for you in the March issue.

XTAL IS GROWING. With the January XTAL we have increased our page size to that currently used by QST and CQ. This will not only minimize difficulties with advertising cuts but will make for a better-looking magazine in general. It's part of our long-range plan for continued progress.

DX'ERS OF THE MONTH. Don't forget this new feature, which was outlined in detail last month. Working ten countries (outside of the U.S. and Canada) in any calendar month makes you eligible for inclusion in the roster. However, we won't promise to make that qualification permanent, because we've been receiving some reports from VE3LZ and others which leads us to believe that ten countries is only the work of a few hours! Therefore we may have to make it tougher by raising the ante to fifteen or twenty. Unusual feats such as trans-Atlantic work on 80 will also receive honourable mention. Which brings us to a letter received from G6BY, E. Parker, of Weston-super-Mare, Somerset, England, who for some time has been monitoring the 80-meter band from 0100-0230 hours GMT daily, with an eye to contacting phone stations on this side of the Atlantic. He reports that many W and VE stations are heard consistently over there, and that the signals are usually free of the "night effect" caused by solar activity which is so prevalent on the other DX bands. The following phone stations have been logged on at least six occasions by G6BY:

VE1LH R5 S6	VE3AIU R5 S6
VE1MZ R5 S5	VE3BFU R5 S4
VE1JB R5 S5	VO1I R5 S5
VE2TH R5 S7	VO2L R5 S7
VE2QF R5 S5	VO4J R5 S7

Calls are followed by average signal reports (R for readability, S for signal strength). All the above were heard at least six times in the eight-week period ending December 11, 1946. Further comments from G6BY: "Dozens of W stations have been worked and QSO's of two hours' duration are commonplace. May we hope that our W and VE friends will use this band when 14 mc. is closed, and further that they will make a point of plainly identifying calls, realizing that they are being heard on this side of the Atlantic often far better than on any other band" . . . CW DX is also coming through on 80, G, PA, OK and HB having been heard recently in Eastern Canada . . . Phone men should be looking for English Stations including G6BY on 7130 Kc. or thereabouts each evening. He works W1DQ who uses 3990 Kc. Incidentally on New Year's Day 1DQ and 6BY celebrated, among other things, their 300th QSO since last July.

AFARS CAROA HQ would appreciate news from various Flight Leaders throughout the nation. Beginning with FEB, and a FB article by Keith Russell, XTAL would happily devote an exclusive AFARS Column monthly to the furtherance of this splendid idea. Following is a list of Flight Leaders who may be contacted for appointments and information.

SQUADRON CONTROLLERS

AFARS

Halifax: Donald J. Bain, 9 Henry St.,
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Montreal: K. R. Patrick, 1001 Lenoir St.
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Ottawa: Bert Knowles, Lanark, Ontario.
London: Robert Hunt, 103 Garfield Road.
Hamilton: Noel Eaton, Oakville, Ontario.
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Toronto East: Dr. Donald Gunn, C/o Ontario
Hospital, Mimico
Toronto West: Harvey Reid, 371 Willard
Avenue

C A R O A NATIONAL REPORT

VE4

C. E. Johnson, VE4XO—Manitoba

THE fall season was ushered in the WARC banquet held in the Marlborough Hotel October 11th where practically the entire Winnipeg gang held forth in a night of merriment. Needless to say, the QRM was terrific. Next event of interest was the WARC amateur radio booth at Hobby Fair held in Winnipeg Public Library October 24th to 26th. Two complete fone and CW stations were in operation at the show plus an excellent display of complete amateur equipment such as receivers under construction, field strength meters, U.H.F. equipment plus the usual array of ham gear. The Winnipeg Club meets once each month and is always glad to welcome visitors. Those planning visits to Winnipeg are requested to contact the club executive who may be reached by telephone—Alex Parmley 4AD vice president 92009, or Jack Green, 4BQ president, phone 33344. They will make sure that visitors will see the city from both the top and bottom of the pavement. . . . Speaking now of local activity we list herewith those heard locally on 20 meter fone—SJ, IP, QE, YO, VK, CC, LF, TB, SH, PG, BR, KX, ZK, KF, FU, NI, QV, IS, EK, LH, AJ, NT, AD, BO, NG, JS, CR, AC, MN, BM, QI, ND, NO. By the way, ND has migrated to the land of sunshine—Florida, for the winter. JF has taken on a wife and hence has discarded ham radio. TC is heard occasionally, MC will be heard someday, it says here. Rotary beams are in use at ZK, KF, KX, NT and NI. Turning now to CW we hear the following locals pounding brass—RO, XO, BQ, TX, NZ, KI, OV, KU, MP, DX, LC, JE, RX, PK, YZ, CV, AH, SH, IU, RN. Many new calls are heard on 40 and we are not able to keep up with activity on that band. Regular locals logged were TV, XO, RO, AM and FR. On 80 meters our city has been represented by WF, TV, YA and AM. 10 meters is represented by MW, JH, WH, GQ, EK, KX, and RO, while the higher frequencies such as 56 mc is kept active by CD, QC, QE, DG, EA, GQ, CH, CV and KL. Highlights in operating activity is the DX record of 4RO who has chalked up 99 countries post-war; and with JE's QSO with an Aussie using 3 watts to an indoor antenna on 20 meters.

Report 559. Our congrats to these OM's for the fine achievements. . . . Recent visitors to the district include W9MAL, VE3AFQ and VE3AZA. We have just learned of the new out-of-town calls 4EH Berens River, 4DK at Dauphin and 4MM at Portage la Prairie. We have the following report on AFARS activity: Flight "A" of AFARS going good on Friday nites with KD of Neepawa as flight leader. Following on it—CU Neepawa; HS Miami; HV, Winnipeg; IF, Brandon; JM, St. Vital; MM, Portage la Prairie; EO, Flin Flon; AP, Brandon, and HD, Brandon. This net also includes 9AFH, Dryden and 3CH, Ft. William. . . . 4BD, Deloraine gg to Calif for the winter, II also on at Deloraine. IF at Brandon building relay-controlled all-band fone-CW rig, expects take 3 years to complete. AP, Brandon had had luck with basement caving in as he was moving his house on it. ex 5AU Les Ledore got 4AV when he moved to Brandon. From Flin Flon we learn EO, EQ and YM are very active on 40 and 80 CW. CU at Roblin runs 2A5 xtal, gets good reports. PA at Dauphin uses 40. In case you don't know it, AM, JM and YM are all the same family, work 80 and 40. Another St. Vital station is FW who uses 80. JN, Waskada brought in receiver from U.S.A. XP, Dauphin heard on 75 fone. AN at Portage has new xtal on 80 also uses 20. Manitoba fans please note 4GE still uses the OM's call IF, still as much background noise as ever. We understand EX is getting receiver going.

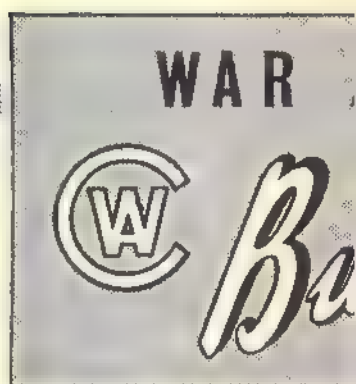
VEI

Ron J. Hesler, VE1KS—Maritimes

Membership in the Lakeburn Radio Club has now reached 35 members. QT and LO are active on 6 meters and report excellent results. II and ND are planning to hit the six-meter region. The Lakeburn club are going all out in trying to reduce B.C.I. problem with TN as the head of their committee. PA, after one month of doctor's orders is now back on 20 and was last heard digging down to ten. TN is now sporting a pair of 807's in the final and stick pretty

To MERCHANTS

The following war surplus items
are available
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RECEIVERS—Aircraft Equipment, Type R1155 (English Manufacture). Circuit Type and Electrical Characteristics.

1. Standard Superheterodyne.
2. Intermediate Frequency 560 Kc's
3. Range: 75 Kc's to 18.5 Mc. In 5 Ranges: Range 1, 7.5-18.5 Mc's; Range 2, 7.5-30 Mc's; Range 3, 600-1500 Kc's; Range 4, 200-500 Kc's; Range 5, 75-200 Kc's.
4. Beat Frequency Oscillator (B.F.O.).
5. Automatic Volume Control (A.V.C.) or manual according to position of a Master switch.
6. Visual Tuning Indicator (Magic Eye Type).
7. Provision for D.F. Loop (Loop not provided).
8. Tubes—10 English type, but sockets are standard American octal.
9. No loudspeaker (Receiver Output for headphones only).

Receiver Sensitivities:

For Standard 50 milliwatt output.

210 Kc's—12 Microvolts.

16 Kc's—6 Microvolts.

Maximum possible output 100 Milliwatt into 5000 ohm load.

Note: These Sensitivities are not guaranteed, but indicate only what performance may be expected

Power Requirements:

Filament: 6.3 Volts A.C. or D.C. approximately 4 amps. H.T.
217 Volts at approximately 75 Ma.

These voltages were normally supplied from a Dynamotor operating from a primary supply of 12 or 24 Volt D.C.

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RADIO HAMS

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Conversion to A.C. and Loudspeaker Operation.

These receivers are readily adaptable to 25 or 60 cycle, 110 volt operation by inclusion of a standard transformer, rectifier, and filter arrangement and to Loudspeaker operation by the addition of 6F6, 6V6 or similar output tube and Loudspeaker Coupling Transformer. Under normal circumstances sufficient room is available in the Receiver proper for inclusion of all the above additional components.

TRANSMITTERS—Aircraft Equipment, Type T1154 (English Manufacture) Companion Transmitter for the R1155 Receiver.

Electrical Characteristics:

1. Frequency Range. In 3 ranges: Range 1, 5.5-10 Mc; Range 2, 3.0-5.5 Mc; Range 3, 200-500 Kc.
2. Power Output Approx. .30 Watts R/T MCW, 100 Watts CW depending upon Antenna.
3. Frequency Stability Master—Oscillator
4. Percentage Modulation 70%.
5. Type of Modulation System—Class A suppressor grid modulated.
6. Tubes—4 English type 2 VT 105 triodes, 2VT 104 pentodes

Power Input

Normally used with dynamotor (not supplied) capable of supplying 1200 Volts ma. and 6 Volts at 4 amp.

Dimensions 17½" x 16½" x 11¼".

Weight Approximately 47 lbs.

close to 75 fone. QS and BF the antennae rivals add fuel to the fire by three way QSO's for comparative reports. RE, QT and QS went out looking for Xmas trees and arrived back at their shack with lovely and limbless 50-foot sky hooks . . . rotor jobs . . . we wonder. VF. a newcomer to Moncton, is getting dx on 20. PS has licked the parasitics, now works 20 and ten. LO gets his XTAL all wrapped up in a medical journal cover . . . still looks a little bit puzzled. EY in Charlottetown is another newcomer to 75 fone with an 813 in the final and Grid Modulation. HI now sports a new RME-45 receiver after a recent trip to Ontario. SY active on 10 meters with 500 watts of c.w. QF finally subdued the xyl's pleadings and now has moved his 400-watt fone job from the cellar to the dining room. TP has recently obtained one of the new Millen v.f.o's which appears to be working fb. MA from all reports came out second in a pie eating contest only because he had stuffed himself at an earlier luncheon. KC active on 10 fone from Sackville and really knocking off the dx; however, is having trouble with b.c.i's in the same boarding house—Nip is looking for a house to move into so he will not be further troubled in this connection. LG has a new rig ready to go on 10 fone with. BW finds time for the odd bit of operating in between supervising the building of a new large greenhouse in Kingston. NZ recently got into trouble with his six-year-old son when he told him that a VE8 he was listening to was only a little way from the workshop of Santa Claus—his son immediately wanted him to contact Santa; Wimpy is still trying to find a way out of this one! BC has a new and improved TEMCO transmitter on the air. LG has recently turned out an extra good photographic QSL which illustrates his rig and himself—make sure you send LG a card after a contact in order to be put on his "mailing" list. CX is back on the 75 fone band again. CL has his new modulator perking. MA was recently heard working a Dutch station on 75 fone. ES has placed his order for a new S-40 receiver. DY is planning to move his station from his store to his house.

VE6

W. Savage, VE6EO

SR is contemplating Class B modulation. HB works out good on 2 watts. HN has a skating rink 10 yards froh his shack. DN has laran-gitis (bad for a fone ham) was sa? EI is afraid of attending the Calgary Radio meetings, he feels like a lamb among a pack of wolves. VN is looking for a good QTH in Lethbridge so he can put up a good sky wire. KO has his rig going now and has had several QSO's but has antennae trouble. FK makes a nice score with fone in the SS contest. OA

and GD go to town on CW in the same contest. DV has another daughter. OG and LA work an XE on 75 fone, nice going. JF has his ladder slip while working on his antennae, be careful Jack, because JJ is not finished yet with his crutches. WG goes skating to wear off the effects of the SS contest. HB is using an ECO now to dodge QRM. IX has rebuilt his modulator. OT is putting up an 80-ft. mast. CE is now working in Edmonton. PP is working out good on CW. DR and xyl drive into Lethbridge to see the hockey games. Audrey thinks Lethbridge team is the tops (sez me). OD is getting out nice on 10-meter fone. ZI is still pumping out the KW's with his home-made A.C. generators. HW has his modulator working now. EV is really frozen on 10-meter fone. RH now has a new receiver SX16. HN is going to town on 75-meter fone, fb Jack and we're looking for a gso. SO is transferred to Vancouver after working so hard to put a pair of 813's on the air. Wonder if any of the local boys made this possible hi. JR made a recording of himself and VN playing a clarinet and guitar respectively, I mean respectively. IV pays EO a visit and brings a wire recording machine which already had an imprint of EO calling CQ. SL was surprised when we recorded his transmission and sent it back to him. I would like to take this opportunity of wishing all the VE6 fellows and this xyl's A Happy New Year, and don't forget OM's please send in some information for this column, to let the other fellows know what you are doing, we can't hear you when you are on 10 meters.

VE3

R. C. Hunt, VE3WX—London

BBQ ex 3FI operates from AZN temporarily; froze two fingers erecting 55 foot sky-wire in 20 below WX. ALU going strong on 20 with an odd try at 80. BJE rebuilding and contemplating ECO, rotary beam and all the trimmings. PH bounces signals from rotary beam off adjoining church steeple; has Gremlin trouble on 10. AZN operating from KARL Club Rooms until XYL gives the go sign. BGE 807's get him down. ALT gives 20 a good workout. BBG reports that local police rig at Kirkland Lake on 39 megacycles FM had half hour QSO with police buddy in Victoria, B.C. Authorities worried since Kirkland Lake cops get instruction from Victoria and vice-versa. Visitors at BBQ include AHQ and VE4GM. Go active on both 20 and 80 phone. NX keeps Wingham district alive and finds time to visit London Radio Club with AIU Goderich. UA joins AFARS net as valuable link between Soo and Winnipeg. AKR lectures on FM at Windsor Teachers Institute assisted by FP and WENA Detroit FM station. GT QRL new job, can you imagine a SS contest

without Sam. ABZ active on Ontario phone net from Galt. FP has emergency power supply for the best amateur phone we have heard on the band. CP has been appointed PAM Ontario and Flight Leader AFARS phone net 3815 KC: has done a fb job of organization. HP skeds Montreal, Ottawa, North Bay and Hamilton; has two transmitters on all bands with 150 watts, traffic 134. TM announces arrival of second Jr Op, John Edward, says he is rebuilding. MI reports for Westside Radio Club Toronto, JJ is new Club call, APG expected back in Toronto soon. AGB now at Jordan Station, Ontario. HB also welcome Jr. Op. ATB lets 2 meter bug loose at Club UT and AEM. ATB and AEM heard in Hamburg N.Y. on this frequency. AEM now going for 16 element beam. AIB says his antenna pole looks like a cross bow. HI continues his outstanding DX, now trying 40 CW as well as 20 and 10. DU gives fb talk at local club on "Getting the most out of your Radio Club." NI Jim has been under the wx and as a result has not been able to keep up his usual activities. IB we extend our deepest sympathy to Wally on the loss of his wife November 4 last. AJE the OM has apparently crawled into a hole in the mountain; something mysterious here fellows; mebbe working on an atomic ether blaster or the like. AAO looks like Jonnie might be on the air soon. BEV the DX competition in London is really something what with 85 foot poles, rotary beams 8JK's etc. don't know whether Hobbs or Jim will win out. ADB finds time for a few 76 meter QSO's. Only two houses separate AGY and BJT there will be co-operation there or else. ATR waiting for transformer for 100 watt rig Traffic 4.

DRS. HP-CP-DJ-OI-ATR. Thanks for your co-operation gang and we hope you will keep the reports rolling in. This is your local newspaper and to print news we must have reports from you all. The QTH is 103 Garfield, London, Ont.

VE8

Jack Spall, VE8AS—Whitehorse

CONGRATULATIONS goes to VE8AY who recently made W.A.C. AK and AG are trying 6 meters with flea power rigs only contact and DX so far has been from 10 feet away. However they are hoping for better luck soon. AG has a shombic for 10 and 20 should help his 807 fone and CW to get out a lot better—we welcome MX who recently was discharged from army after spending two years at Norman Wells, says he will be adding to the Whitehorse QRM soon as new call arrives. BF left for Montreal and discharge from R.C.C.S.—hope to hear him sining VE2 shortly. AJ and AK finally worked

Ex VE8AR new VE3AGB on twenty fone. The other night we listened in and sure was good to hear you again Tommey. From Teslin comes news that AL has rebuilt rig with 807 and will also be on ten now. AZ left for leave outside. AP hopes to be on air very soon. AV recuperating from vacation outside. AI and AL also trying 2 and 6 meters. Maybe we can hook Teslin and Whitehorse up on 6. We are pleased to hear from VE8BC at Bear Creek—hopes to have a pair of 809's going soon but like all of us is held up for parts. Sez he will be on 80 CW with 807 until parts for big rig arrive—has S20 receiver. AO also getting interested in 6 meters—on the air we hear NG at Aklavik. AS has 250T finally going now but no bandswitches in yet, starting work on modulator class B 805's. We are still hoping to hear from you fellows in the N.W.T., so how about dropping me a line around the end of each month. The QSL cards are piling up and cars for the following are on hand: MQ, MF, AZ, (ZF?), MN, MM, MK, MS, MG, MR, MW, BA, MJ.

VE7

D. E. McLennan, VE7JY—Vancouver

Club QRM: 7YS Hugh White open for contacts on 10 cw.; 7AKK now operating 80 cw.; 7MH Gord Armstrong, putting up 135' ant wire; 7AK Chas Street heard testing on 10 fone again; 7AZ, listen in regular, it beats the Bob Hope Show; 7ADV, heard on 10 fone wid 125 watts, a fb new rig, single 812 final, enclosed in metal cabinet; 7AJR, working all the DX on ADV old rig, 10 fone; 7UU, heard on 20 cw. wid 150 watts; 7LF, open for contacts on 40 es 80 cw.

QST: Happy New Year with loads of DX to all hams, world wide from Ve7DJ.

More QRM: 7XT open for contact 40-20cw.; 7AZ has at long last discarded the PM spkr as a mike for a fb new Xtal one wid plastic case. Has also made S meter for the home brew receiver from war asset special, using vacuum tube voltmeter circuit; D. Foster is making a FB metal rack for Club Xmitter; 7AK would like Santa to leave him, a receiver that would work on 10; 7MH is fixing BCL sets again. Hi; 7UU building a new Cathode Modulator for the HK 54 final.

Anything can happen on 10 — All who listened on 10 fone, Sun AM Dec. 15 heard a nice PROPAGANDA program in operation Freq. approximately 28.2 es 28.4 (near 7YD hi hi). Frankly we thought our receiver was out of alignment hi hi. No station identification was given out all during the wailing es moaning of religious text, etc. We logged them at S9 plus 20 at Surrey, B.C. This bootleg outfit is possibly located in Central Canada. This is another job for Canadian Hams to clean up.

QSY to page 28

VHF IN CANADA

By GORDON COLEMAN, VE3ANY

CONTINUED activity on the 50-54 mc. and 144-148 mc. bands is certainly encouraging to those of us who hold forth on these unpredictable frequencies. Operation of equipment, propagation effects, antenna design and radiation characteristics etc. on the lower frequency bands have become more or less cut and dried; and except for rare exceptions, little advance has been made in recent years, except in the compilation of data and the completeness with which it is reported, in the latest technical literature.

Regarding VHF, we are at the stage today where we were in those early days when amateur operators were requested to use the frequencies above 1500 Kilocycles. The only difference now, is that the request is not forcibly made and plenty of good equipment is available for use "down under". However, techniques for use on VHF are vastly different, equipment must of necessity be much more efficient, and antennas more accurately made. Regulations in the U.S.A. regarding the use of modulated oscillators, and "swish box" receivers have aided greatly in the advancing of the VHF spectrum out of the infancy stage. The only reason that the Canadian Government has not, to date, issued similar regulations is the fact that they must think, and rightly so, that there isn't enough activity on these bands to warrant their special consideration.

We do not propose, in this column, to cram VHF down anyone's throat, but would like to suggest that considerable power could be saved, and experience gained, by using VHF for round-town gab fests that are at present being held on the highly QRM'ed 75 meter fone and the DX populated 10 meter band.

Recently we have listened to hour long QSO's between Toronto, 10 meter, 200 watt stations, a matter of 20 blocks apart, while choice 7000 mile DX was vainly calling CQ underneath one of the culprits. Also, on 75, 59+ VE2's and VE3's talking across town are also being heard 59+, 300 and 400 miles away. These are harsh words but only too true! They could have accomplished the same end on 6 meters with one-tenth the power and the satisfaction of knowing that, except in rare cases, their business was not being spread out over thousands of square miles of countryside.

A complete transmitter and receiver to

cover the VHF bands would not need to occupy more than one cubic foot, and who but the most cramped ham shack owner could not find that much room! Besides, if the big rig ever developed a bad case of burned out filaments, a stand-by rig would be on hand to enable hamming and rag-chewing to continue until another pay rolled around, with wherewithal to replace the "dud" components.

Enough of this plugging! (The 75 meter boys are getting tired of hearing us play up VHF but we'll keep it up until VHF qrm gets us down! hi!)

STATION ACTIVITY NEWS

News is pretty sketchy, since this column is in its barest infancy.

Also, news so far, is confined to the Southern Ontario sector, since we have not had the chance to contact the groups throughout Canada that are known to have considerable VHF activity. It is known that VE1's, VE4's, and VE7's are quite active and we expect by next month to be able to forward reports on their activity. So for the present.

ON 50-54

VE3KM Bartonville has a new rig. 6K6-807 modulated by 6V6's, built as a portable for mobile operation using an M-G set. Putting a FB signal into Toronto from home location. VE3AID is on again from new QTH in Willowdale and getting into Toronto swell! VE3AZV, Oshawa, who was a regular into Toronto and Lakeview is QRT while finishing up new home. Be looking for you Ed! "Old Wally" VE3IB, Weston is back on 6 after visit to VE3PG in Ottawa and reports no VHF activity there. Getting interest are VE3DE, Niagara Falls, VE3AIN, Thorold, VE3AIO, Humberstone. VE3ANY Lakeview is heard 57 in Buffalo by W2CUT! Rig, 60 watts to 829B final. W4GJO heard Dec. 3/46 in Lakeview for a solid half hour. Called him but ND. New stations on in Toronto are VE3AME, VE3PK, VE3AVF, VE3ALI, VE3NH and VE3BFF Hamilton have new rigs, 3NH with 8JK Beam antenna! Could find no reports of VHF activity in Montreal. What's wrong VE2's, that mountain of yours was made to order for portable work. If you don't need it ship it down to the Toronto gang!

QSY to page 32

Pulse Detection

New Device Gives Static-Free, Noise-Free
Commercial Radio Reception !

by DON HINGS*

SAM TRAINER called us up the other day to say that he had something authored by Don Hings that would be of interest to nearly every ham. Any "tin ear" will appreciate something that eliminates noise, static, fading, and we hasten to let you in on this one.

The principles used in the pulse detector are applicable to the second detector circuit and function somewhat inversely to the usual methods of commercial wave reception. The detector circuit is limited by a low impedance gating circuit, which dissipates the energy during the short circuiting interval. As a result, the detector load circuit receives the lower amplitude caused from decaying waves, at the low gating level and no wave form exists on the detector load circuit during the CW interval.

The wave form from the decaying waves, developed from general noise or even from conversion noise in the receiver, is then amplified, limited and rectified and the relatively constant DC component, unless interrupted by a continuous wave at the detector, is used as bias to control a balanced amplifier that is being excited by a tone generator.

In operation, it is possible to balance the amplifier for either the marker or spacer intervals and the resulting signal is noise free and of constant amplitude on the tone, thereby making it suitable for operating printers and automatic equipment or for oral reception.

Operating values are generally set on a good receiver so that gating occurs with approximately one microvolt input signal. Anything in excess of this has no detrimental effect. Consequently, automatic volume control, noise limiting and beat frequency oscillators are not required in this system of reception. The selectivity, of course, should be the best permissible in the receiver design.

Fighting fire with fire may sound strange, but everyone knows its application in controlling huge forest fires.

Using noise to eliminate noise, however, is the newest application of this same principle and now affords absolutely noise-free, static-free, fade-free radio reception for commercial uses. The device, which makes such radio reception possible, was announced today (Nov.

11) by William W. Garstang, president of Electronic Laboratories, Inc., of Indianapolis.

Known as a "pulse detector", the device actually applies a new principle to radio operation, according to Garstang, for it detects noise, and then utilizes the noise to pass on the radio signal, however weak. The signal itself is not employed in the final reproduction, but is translated to result in a perfect signal response.

First announcement of the pulse detector was made November 11th, in a private demonstration at the Rochester Fall Meeting of the Institute of Radio Engineers, and the Engineering Department of the Radio Manufacturers Association.

Inventor of device is Don Lewes Hings, vice-president of Electronic Laboratories in charge of research. Research work on the pulse detector was carried out at Electronic Laboratories research centre in Vancouver, B.C., Canada.

Commercial radio applications of the pulse detector will be a long stride forward in safeguarding and improving communications for airlines, police, ship-to-shore and similar communications as well as in the reproduction of telephoto and facsimile reproduction for newspapers, said Garstang.

Hitherto, the greatest problem in the transmission of a code signal by radio was in eliminating the noise caused by natural static or electrical interference. At the input stage of a radio receiver, a series of wanted pulses (the radio signal) gets jammed up with other unwanted pulses (static). Until Hings' development of the pulse detector, these unwanted pulses have been considered so similar in basic nature that there could be no means of separating them. And thus, when the ratio of unwanted pulses to the wanted pulses becomes too high, communication becomes impossible as the wanted radio signal is blanked out by the unwanted noise. This is equally true in automatic commercial transmissions or in personal code communications.

Attempts to improve this condition in the past have been based on the assumption that the noise could never be completely eliminated. Best results, with this basic conception, were to reduce the noise to the same level as the signal, provided a strong signal were present.

(*Electronic Laboratories, Vancouver, B.C.)

On weak signals, over long distances, communications are still disrupted by electrical storms or heavy man-made interferences.

Hings, using a logical approach to the problem, reasoned that there is a basic difference between noise and signal pulses. In the pulse detector, he developed an electronic circuit that can recognize the existence of a very small trace of a regular code signal even though mixed in an unbelievable background of noise. This tiny signal is so insignificant that when the usual receivers with the most advanced noise limiters are used, the signal cannot be detected through the noise. Yet, Hings' circuit functions reliably to pass on to successive circuits an indication during the intervals when the code signal is being received.

This radio signal, thus drawn from the jumble of sounds, is used to control the action of a local sound generator, which is perfectly clear and noise-free. As far as the listener is concerned, the code signal heard is perfect—with absolutely no trace of background noise or static. This is true even when an open spark gap is operated alongside the receiving antenna and no trace of the spark gap to interference is detectable by the listener.

Hings, in explaining his invention, states that since noise is always present in some degree—why not use it rather than attempt to eliminate it. In effect, that is exactly what his new electronic circuit accomplishes. The noise serves to "close a valve" to prevent the locally generated tone from reaching the operator. The tiny pulses of code, separated from the noise, serve to open the "valve" in unison with the original transmission.

Hings' pulse detector is already in use by the Vancouver, B.C., Canada, police who appealed to him for a solution to their usual jammed-up radio communications. So effective has the pulse detector proved in this application that it took several weeks to convince the operator that the noise-free signals he was receiving were the real thing, and he insisted on checking them with his former equipment—so he could hear the noise. Convinced, he now "receives" in his sound-proofed cubicle, in a silence broken only by the sharp "click-click" of his receiver.

INCIDENTAL INTELLIGENCE

3ACL to 3AEC: "I worked Czechoslovakia on 80 meter CW last week."

3AEC: "Say, that's OK!"

(Editor's Note: He did, too. OK1LM on 3550 CW, 10.30 p.m. December 9.)

WHERE THE SUN DOGS DANCE

By OJIBWAY IKE

IT began to blow pretty strong. After a couple of seas had come in over the bow of the canoe we decided it was time to duck. Ten minutes of digging good and hearty with our paddles put us in the lee of an island. Behind the island was a narrow bay. At the head of the bay we could see the roof of a house among the trees.

As we got closer we saw a fellow come down to the dock to meet us. We eased up alongside. He didn't say much as we unloaded our duffle to dry. The last thing out of the canoe was the portable rig. That made his eyes open up plenty.

Seems like he's a ham too. We wondered. There was no sign of an aerial and no power.

The man says he only operates after the freeze up. He uses batteries and a wind driven charger. Manages to work the world when he gets his beams up.

When he says "beams" plural we get mighty curious. You don't hurry these backwoods types. He asks us to supper. We eat right good. After the the dishes are done and our pipes drawing nicely we get the story. Could be true—mebbe not. What do you think?

He tells us he normally uses four or five Vs and mebbe one or two rhomboids. They don't go up till after the freeze. He showed us a pile of nice cedar poles. No trouble there—the woods are full of them. He also has reels of wire.

Long around the middle of November it gets good and cold up his way. By December the mercury has left zero behind for months to come.

When the ice gets a couple of feet thick he takes a pole over his shoulder and goes out on the ice. When he's located just the right spot for the end of a V he takes an ice chisel and makes a hole. Then he holds the pole in place till it's frozen in good and tight. The man says a morning's work is all he needs to get the three V beams up and going.

Not having any surveying instruments sometimes he gets the bearing wrong. No trouble there. He just chips out the posts and moves 'em over.

Biggest trouble he has is when the aurora gets crackling. It's not so much that it smears DX as the fact that he has not yet

QSY to page 26

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The Amateur Radio Fraternity of Canada is proud indeed to list among its members a sincere, capable and progressive candidate. His election would be the finest thing that could happen to Canadian Amateur Radio. Make sure of his election by marking your ballot in his favour and forward it as directed before February 20th.

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20	28000 " "	29700 "	6.10	11	27185 "	27455 "	6.10
10	56000 " "	59400 "	8.80	2	54370 "	54910 "	8.80
6	112000 " "	118800 "	12.10	2	108740 "	109820 "	12.10
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HQ—from page 13

to have to fight to retain our present frequencies, and ARRL feels that any discussion on the sub-division of bands should be shelved until we find out if the picture is changed at the May conference. It will be nine months at least, therefore, before any alterations in the status quo can be expected. The only possible exception to this is the question of Canadian phone privilege on 20 meters. Whether these will be returned in their pre-war entirety is not known at present.

Communications

Our members can look forward shortly to details of a new field organization, which will affect our present DCM's among other things. This is the result of negotiations now going on, out of which will come a new Canadian traffic system and other benefits to VE hams. Keep your eye on XTAL—and get ready for great things to come.

Two Letter Calls

The Department of Transport has informed us that a limited number of two-letter calls will become available for reallocation on April 1st next. This applies to the Third District only. Applications for these call signs will

be accepted from ex-service personnel, with priority being given in the order of experience as licensed amateurs. Applications should be made at the time you submit your license renewal fee in March, and not before.

WAVE Certificate

First station ever to qualify for the Wave Award (for details see Aug.-Sept. 1945 XTAL) is W9VKF, of Peoria, Illinois. Working each of the nine provinces on two bands is no easy feat, and our congratulations go to the first winner. Perhaps this will inspire some VE to go after Certificate Number Two—we know now it can be done!

PLEASE!

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DX CONTEST—from page 10

- 4 Page six of QST carries a complete list of the Sections of the ARRL Field Organization.
- 5 "Countries" for W/VE. "Districts" or "licensing areas" for others: A progressive record of the number of new countries (or licensing area) is kept in these columns. Consecutive numbering of countries using different colored pencils may be used to arrive at the multiplier for "each band" which is added to obtain the over-all multiplier if desired to mark this in home-station logs. The "worked record" in official contest log columns shows the progressively increasing new countries (or licensing areas) in each band as the contest proceeds. The last number shown in each column added to similar numbers in the other columns gives the over-all multiplier. Counting all the different number entries in all columns gives the number of different contacts on each band for information for the log heading.
- 6 Total "points" multiplied by the number of (1) countries or localities for all bands or (2) U.S. and Canadian licensing areas for all bands equals the Score.

SUN DOGS—from page 22

been able to work out how to put the aurora to work. If only he could take the juice that piles up on those beams and charge batteries with it—or maybe run a washing machine he would be happy.

Strange things sure happen when the sun dogs dance.

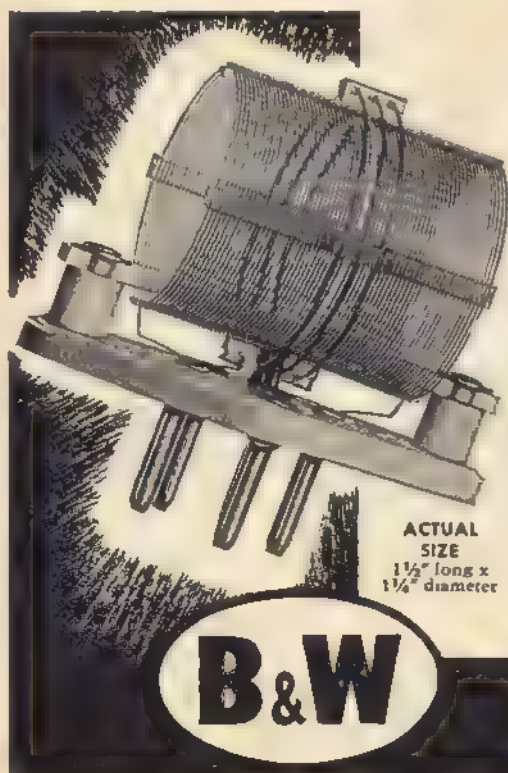
WELCOME

The return of the B. C. AMATCHEWER, official monthly publication for the VE7s. Masthead of the British Columbia Amateur Radio Association, the first post war edition is a dandy. Congratulations and best wishes to Editor R. O. Tufnail VE7FM and his associates, Art Spence, John Dibson, and Tom Clarke.

— DX CONTEST DATES —

CW, Feb. 14-17; Mar. 14-17

Phone, Feb. 21-24; Mar. 21-24



B&W "BABIES" are back!

A ham friend took us to task recently. "Sure we're interested in your Co-Ax Cable Connector and all the other new B & W developments — but what about those 25-watt B & W Baby Air Inductors? Do you still make them?"

Sure we do! But only lately has production reached a point where "Babies" were again generally available through B & W distributors. Look 'em over — or write for our Baby Air Inductor Data Sheet X100.

These husky little coils are the finest, best-looking 25-watters ever made. 5 types cover from 10 to 160 meters. 5-prong bases permit easy band changing. Windings are perfectly spaced and B & W Air-Wound design puts an absolute minimum of insulating material in the coil field.

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Rag-chews with XTAL readers

QSO NO. 7 OF A SERIES

We are only human, fall in love, have grouches, and are bitten by bugs like anyone else. At the moment it's Q. and A. with us, so read on:

Q. What is a Metallized Resistor?

A. A Metallized Resistor consists of a very thin film of fine conducting particles bonded together on the surface of an insulating base.

Q. How thick is this film?

A. About as thick as the seat of our 2nd-best pants—one to three thousandths of an inch.

Q. How fine are these particles?

A. Of colloidal size — they are ground fine enough to float in air.

Q. Of what are these conducting particles made?

A. Carbon and other conducting materials.

Q. How are they bonded to this insulating base?

A. The conducting particles are deposited in a controlled film on the surface of the insulator. Successive treatments in high temperature conveyor ovens bond the particles together and to the insulating base. This stabilizes the film to prevent changes in resistance after the unit is completed. Needless to say, these processes have been continually improved and refined during the fifteen years we have made resistors.

Q. What is the insulating material on which this film is applied?

A. Glass, Isolantite or Steatite, and Bakelite. A special glass rod or tube, about the diameter of a pencil lead, is used in the High Frequency "F" Type and the Insulated "BT" Type Low-Power Resistors. The same is also used in the Types "FH" and "MG" Ultra High Range Resistors (up to 100,000 megohms). Isolantite or Steatite tubes are used as the base material for the Type "MP" High Frequency Power and the "MV" High Voltage Resistors.

A high grade bakelite is the material to which the metallized film is applied for volume controls.

Q. Wherein do these Metallized Resistors differ from the common carbon units?

A. The Metallized Resistor has a conducting film of minute cross-section compared to the solid body of the molded or extruded carbon resistor.

Q. And so . . . ?

A. The Metallized Resistor uses a conducting element of much lower specific resistance, or; the proportion of conducting to non-conducting material is much greater. This is the direct reason for the low noise level, and low voltage and temperature co-efficients noted here in November.

Q. Will such a thin film carry power?

A. This is a matter of design. We manufacture Metallized Resistors that will handle anything from an earthworm's sigh up to 20 K.W. of R.F. (These latter units are water cooled, of course, and are about 3" diameter x 20" long.) Other low range Type "MP's" handle momentary surges of several thousand amperes.

Q. Will it handle voltage?

A. The standard rating on the Type "MVR" Resistor is 100,000 volts. There are high voltage generators in various Universities using multiple units at a million volts upwards.

Q. How about the frequency characteristic? Does the impedance stay constant from D.C. up to ultra high frequencies?

A. The "MP" Resistors are a close approach to a pure resistance. They are used up to a hundred megacycles. As a dummy antenna load they may be coupled to the final tank in your transmitter without requiring retuning. This same characteristic makes them most suitable for terminating Rhombic antennas, measuring non-resonant lines, etc.

Q. Why do you have so many types?

A. There are six different types of Metallized Resistors, each designed for maximum performance in certain characteristics. One of the virtues of the metallized process in this flexibility in design.

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REPORT—from page 19

VE2

C. W. Skarstedt, VE2DR—Montreal

If your local radio club suffers from poor attendance, copy the methods adopted by the Montreal Amateur Radio Club. This club now hands out prizes galore at every meeting. How long it will last no one knows but it surely fetches the crowd at present. That a wide-awake club executive has also succeeded in maintaining a very high standard of guest speakers is obviously of secondary importance. Some of the more outspoken members have suggested to your reporter, "Give out the prizes first and let us buzz off." A great spirit.

Infractions of operating rules are being discussed but so far nothing concrete has been accomplished. The flagrant misuse of ham privileges by many ops from coast to coast deserves immediate and closest attention.

2SC in the gold mine district at Perron has a husky rig on 80 CW. 2GE raffled off a swell rig at the last club meeting. 2AX snuffed a J3 on 20 and 2VL crossed the QSL mgr by getting his VS7 and directly. Nice going boys. The 10-gang going to town; that band is certainly performing these days with plenty of DX mornings. 2PD with low power embarrasses the high power beam lads. He just keeps working the DX while the others keep calling. 2DD is a VFO addict. It would be enlightening to have a real good argument, CC vs VFO. 2BG walks around with that "Iwannagoodrevrlook" in his eye these days. Don't be surprised if Tommy sneaks one into the shack some dark nite when the X-YL isn't looking. Speaking of sneaking stuff in through the back door without raising domestic suspicions is a feat. The writer's X-YL can sniff even the smallest RF choke a mile away. Step forth you brassy O.M. and tell us how it's done. But don't give us any of that "I am the boss" stuff. We aren't gullible. 2HV runs a nice low-powered fone stn on 80 and hooked himself a VE7 the other morning. 2SA is apparently working on something big judging from the size of the parcels he carts out of the local ham shops. 2SU assists. 2AO, the guy with those jokes (no, not for public) produces again. Gleaming his report we find that 2JB has moved to Victoriaville and is surveying the countryside for a shack with plenty of space (who isn't), that 2AB paid Mtl a visit just before Xmas, that 2LX at Ste. Agathe will soon be on, that 2RO also blew in to town for a dental visit (buying a new dining set OM?), that 2FN and O.T. 2HJ are back on 80 fone (Bingo net??) that 2PX at Montmagny puts in a good rig, that 2QA (Cap de la Madeleine) and 2DD (Grand Mere) are giving the 10 and 20 bands a whirl with foreign success, that 2OD is having trouble getting that piece of wire up into the sky, that 2NL and 2TC are heard frequently on 80 fone, and finally that 2AO himself is too busy telling stories to get on the air. The AFARS gang still pounding away and ready to split up into two flights owing to (believe it or not) GROWTH. Are you a member??

Your reporter is busy QSL-Bureauling, SS'ing, DX'ing, DCM'ing and is looking forward to New Year's eve when muffled sounds from various local X-mas cannot always be traced to stn troubles. Have one on me Tommy

73 -BILL- VE2DR

VE5

Saskatchewan, Bill Gordon, VE5MW, -5QL is on 75 fone. New calls in Saskatchewan are 5DK at Weyburn and 5RI at Moose Jaw. 5JG is now on 75 fone at Swift Current running 500 watts to a pair of 813's. The Regina Amateur Radio Association, the new name for Regina's amateur club, held their re-organization meeting on Monday, December 9, with the following officers elected:

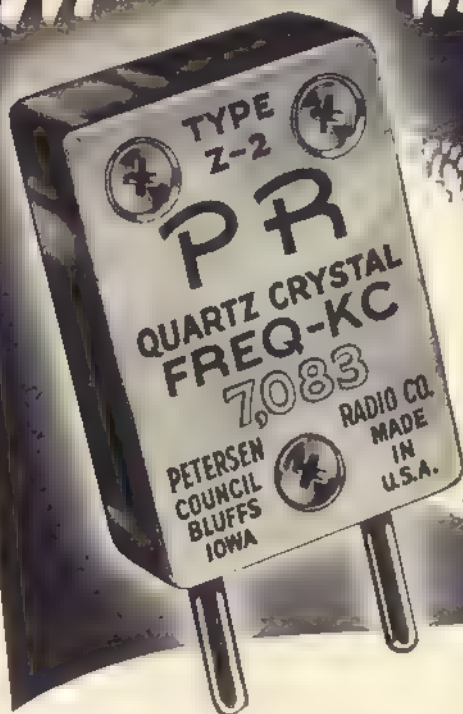
A. Driver, VE5CM—President.

W. Rogers, VE5GA—Lifetime Hon. President

The Regina gang has found a new meeting place which (they hope) will be their permanent home, in the armories. Active hams on the air in Regina include 5LX on 20, 5GD on 10; 5JV on 10; 5CM on 75; 5LM on 75, and 5JP on 40, so Regina is well represented on all the bands. 5GA was appointed OPS for ARRL. Both 5LM and 5MW are working on new rigs for 10 and 20. 5NH at Simpson is on 75 fone. 5RB at Windthorst puts in an R9 plus rig on 75 running 5 watts input to a single 6V6. 5RD at Spy Hill is working on a new ten meter beam. The feature story of the month concerns 5AP at Baring. Seems like Ed. let slip one day that he was going to get married. But he made his fatal mistake when he said he was going to be off the air all winter on account he was going to get married. Well, Ed took quite a ribbing; WHAT would take him all winter to get married?? 5GA offered 5AP and the new XYL a room at his shack up at Regina Beach but Ed. refused. Now everyone is won-

QSY to page 31

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A.R.R.L. ACTIVITIES CALENDAR

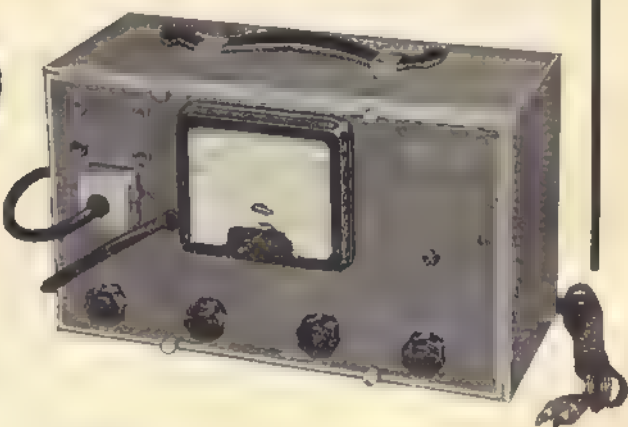
Jan. 24: Frequency-Measuring Test
Jan. 25-26: CD QSO Party
Feb. 4: Frequency-Measuring Test
Feb. 13: CP Qualifying Run
Feb. 14-17: DX Competition (c.w.)
Feb. 21-24: DX Competition ('phone)
Mar. 5: Frequency-Measuring Test
Mar. 7: Frequency-Measuring Test
Mar. 14-17: DX Competition (c.w.)
Mar. 17: CP Qualifying Run
Mar. 21-24: DX Competition ('phone)
Apr. 4-5-6: W/VE Contest
Apr. 18: CP Qualifying Run
Apr. 26-27: CD QSO Party

Jan. 16-Dec. 15: '47 VHF Marathon
Jan. 1-Dec. 31: Most-States VHF Contest



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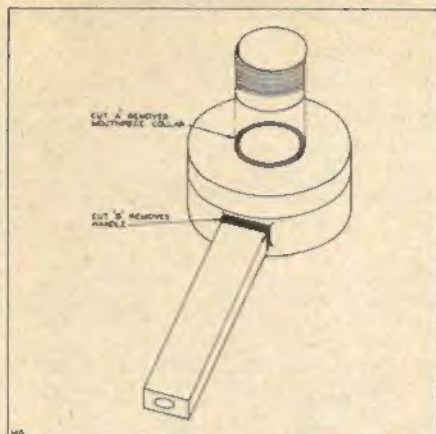
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removable cap of the microphone casing by four more small nuts and screws—and the job is done, except for connection of a flexible co-ax cable to the microphone unit proper.

This microphone leaves a man's hand and attention free. If you want one hand to trim the VFO and the other to light a cigarette—OK. There's no mike to lay down thus, interrupting the QSO.

If the coffee pot boils over or the junior op begins to chew on the cat's tail and the cat objects—all you have to do is to get up (still carrying on your QSO) walk over and deal with the situation. Best of all: if you're really dug into a good old rag chew you can relax on the couch or in your big armchair with a glass of—er—water in one hand and a pipe in the other uncribbed and unconfined by the limitations of a table or hand microphone.

REPORT—from page 28

dering . . . WHY?? All kidding aside, though, Ed. OM, the whole gang wishes you and your new XYL all the best.

Our SCM, 5SY at Moose Jaw has been on the sick list and spent quite a bit of time in the hospital and we feel sure that all the gang wishes him a very speedy recovery. There wasn't much heard from VEs in the SS contest although a few of 'em were heard. Gremlins tell us that 5CO did pretty good in said contest. 5SY is on ten fone. 6IAU of Oxbow as now of Brandon now has his rig in Brandon and is awaiting his VE4 call. He hopes to get his old call, VE4AU back. 6GA on 75 fone puts 80 sigs in with the receiver turned off. Ur DCM wud vy much like to hear from anyone interested in getting in the Saskatchewan division transcon 80 meter net. New call in Sask. is 5XP of Assiniboia, formerly 1XP of Fernie. 6AT at Govan puts in an S-meter breaking sig on 40. 6AP visited 5RB at Windthorst and did some rag-chewing together on 80.

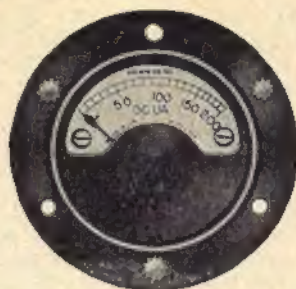
This is ur first rpt. Sask. gang. Hw abt dropping me a line or card and letting us have the dope on what you're doing. Or if a pick anything up on the ether, PLEASE drop us a line. Traffic—5MW, 6.

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AKRL Handbook, 1946	1.50
War Assets Tubes	
807 65c	813 \$11.00

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VHF WRINKLES—from page 20

1. One of the greatest "bugbears" to VHF antenna efficiency is the use of porcelain base, double pole-double-throw knife switches for antenna change over. The porcelain is fb, as is the copper used for blades, but that tie-bar across the top of the blades with the little black wooden handle! Boy! oh boy! It's usually made of hard fibre or some form of pressed board and it always represents a nearly direct short to RF at these frequencies. Replacing it with a bar of polystyrene is the answer to a lot of poor signals, where equipment otherwise is functioning perfectly.

2. One handy method of calibrating the receiver dial on 50-54 mc and 144-148 mc. is to use the present commercial, well calibrated communications receiver. The local oscillator puts out strong enough second and 4th and 5th harmonics to put a dent in the hiss of a super-regenerator or to be heard on a superhet. What is required is to know the IF frequency and the direction in which the local oscillator is offset to the incoming signal. For example: if the oscillator is tuned 455 Kc lower than the incoming signal, (as is usually the case) dial settings for 6 meters would be:—

for 50 mc.—25.455 Kcs.

and for 54 mc.—27.455 Kcs.

The above is for second harmonic radiation. The logged points on the 6 meter receiver can be checked by tuning in the 4th harmonic of the local oscillator on the communications receiver by setting its dial at:—

for 50 mc.—12.955 Kcs.

and for 54 mc.—13.955 Kcs.

Similar simple calculations can be made for different IF frequencies, and for those receivers where the oscillator is tuned higher than the incoming signal. Also for 144-148 mc 4th and 5th harmonics can be received from most communication receivers!

FOR SALE—ACR175, excellent condition, carefully aligned before delivery. Come around and see it if in Toronto. Best offer over \$100 takes it. Call LL. 6832, VE3AHV, 79 Boustead Ave.

WILL SELL Brand new Hammarlund HQ 129 X, used only few weeks for less than original price. Dr. G. W. Davis, Sydenham, Ont.

HAM-ADS

SLIGHTLY USED EQUIPMENT FOR SALE: 1000v 350ma Dynamotor, 28v 19a incut, \$25.00; pair 805's, \$12.00; 3000v Variable Condensers; 3000-

5000v Mica Condensers, etc. Phone VE3ABM at Murray 2980 or Write 220 Rosethorn Ave., Toronto.

SELL OR SWAP—Pair of 852's. Make offer to VE3BBN. P. W. Posnikoff, 371 Keewatin Ave., Toronto. MO. 1198.

SELL 6 tube superhet ham receiver, QST size, tuning eye, 20-40-80 meter coils plug-in, B.F.O., Gray metal cabinet, National dial, New parts (less power supply) \$30.

P.O. Box 138 Three Hills, Alta. (ex-44JQ)

SELL—New speech amplifier and PP-TZ modulator—rack and panel job. Field strength meter, Meters, Oscillator and crystals, T55 all tubes and spares—First 100 bucks takes it! Ve3QP, Box 220, Geraldton, Ont.

LOOK—Best offer over \$60 takes HAMMARLUND COMET PRO—10 to 550 meter coverage—complete with speaker. Ve301, Box 173, Belle River, Ont.

WANTED—Ecophone or similar receiver. W. Folkins, Ve2US, Hotel St. Malo, Quebec City, P.Q.

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